

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A circuit ~~Circuit~~ for extracorporeal blood circulation comprising:

a blood withdrawal line for taking blood from a patient, having:

at least a first inlet end destined to be put into communication with a patient's vascular access[[:]],

at least a second outlet end ~~destined~~ configured to be connected with an inlet of a blood treatment unit[[:]], and

at least one pump portion ~~designed~~ configured to be coupled with a pump for blood circulation in the circuit;

a blood return line for returning treated blood to the patient, having:

at least a first inlet end ~~destined~~ configured to be put into communication with an outlet of said treatment unit[[:]], and

at least a second outlet end ~~destined~~ configured to be connected with a patient's vascular access;

at least one arterial chamber arranged on the blood withdrawal line between said pump portion and said second outlet end of the withdrawal line, and ~~designed~~ configured to contain a first blood storage volume;

at least one venous chamber arranged on the blood return line and ~~designed~~ configured to contain a second blood storage volume[[:]].

said at least one arterial chamber and said at least one venous chamber two chambers being solidly joined one to the other into an integrated structure including a stiff material, said integrated structure having an arterial inlet connection and an arterial outlet connection in fluid connection with the arterial chamber, and a venous inlet connection and a venous outlet connection in fluid connection with the venous chamber, said integrated structure being equipped inside with at least a first duct connecting a first of said arterial inlet connection, arterial outlet connection, venous inlet connection, or venous outlet connections to a first of said arterial and venous chambers,

at least a part of said first duct passing through at least a part of a central portion of the integrated structure in which the arterial and venous chambers are placed one beside the other, said first duct having at least a length extending mainly in a vertical direction with reference to an operating configuration of the circuit, and arranged between the arterial and venous chambers,

said integrated structure being further equipped inside with at least a second duct which puts into fluid connection a second of said arterial inlet connection, arterial outlet connection, venous inlet connection, or venous outlet connections with the first of said arterial and venous chambers, at least a part of a pathway followed by said second duct is parallel to at least a part of a pathway followed by said first duct,

said integrated structure having at least a pair of pump portion connections connected to two opposite ends of a pump portion of the blood return line, said pair of pump portion connections being configured to be coupled with a pump, said integrated structure being further equipped inside with a first connection cavity, putting into fluid communication at least one of said pair of pump portion connections with the venous

chamber, and a second connection cavity, putting into fluid communication at least one of said pump portion connections with the venous outlet connection attached to the integrated structure; and;

a second venous chamber arranged on said blood return line downstream from said first of said arterial and venous chambers;

a second arterial chamber arranged on said blood withdrawal line upstream from the pump portion on the withdrawal line;

said second arterial and venous chambers being solidly joined with one another to form a box-shaped structure, said box-shaped structure being separate from said integrated structure.

2. (Canceled)

3. (Currently Amended) A circuit ~~Circuit~~ according to claim 2 1, ~~in which~~ wherein said arterial outlet connection and said venous inlet connection are arranged on the same side of the integrated structure.

4. (Currently Amended) A circuit ~~Circuit~~ according to claim 2 1, ~~in which~~ wherein said arterial outlet connection and said venous inlet connection ~~have each~~ have an operating axis connecting to a corresponding portion of a blood conveying line, said operating connection axes of said arterial outlet and venous inlet connections being parallel ~~one to the~~ to each other.

5. (Currently Amended) A circuit ~~Circuit~~ according to claim 2 1, ~~in which~~ wherein said arterial inlet connection and said arterial outlet connection are arranged one beside the other on the same side of the integrated structure.

6. (Canceled)

7. (Canceled)
8. (Currently Amended) A circuit ~~Circuit~~ according to claim 6 1, ~~in which~~ wherein said first ~~connection~~ of said arterial inlet connection, arterial outlet connection, venous inlet connection, and venous outlet connections is far from said first ~~chamber of~~ said arterial and venous chambers and is placed on one side of a second of said arterial and venous chambers placed beside the first ~~chamber of said arterial and venous~~ chambers.
9. (Currently Amended) A circuit ~~Circuit~~ according to claim 8, ~~in which~~ wherein the first ~~chamber of said arterial and venous chambers~~ is placed opposite said a side of the second chamber of said arterial and venous chambers on which said first ~~connection of said arterial inlet connection, arterial outlet connection, venous inlet~~ connection, or venous outlet connections is located.
10. (Currently Amended) A circuit ~~Circuit~~ according to claim 6 1, ~~in which~~ wherein said first duct comprises at least a length leading to said first ~~connection of said~~ arterial inlet connection, arterial outlet connection, venous inlet connection, or venous outlet connections, arranged above said a second expansion chamber of said arterial and venous chambers with reference to an operating configuration of the circuit.
11. (Canceled)
12. (Currently Amended) A circuit ~~Circuit~~ according to claim 6 1, ~~in which~~ wherein said first ~~chamber of said arterial and venous chambers~~ is an the arterial chamber.
13. (Canceled)
14. (Canceled)

15. (Currently Amended) A circuit ~~Circuit~~ according to claim 13, ~~in which~~ wherein said second duct comprises at least a length leading to said first ~~expansion-chamber~~ of said arterial and venous chambers and extending in a portion placed below the ~~latter~~ first of said arterial and venous chambers, with reference to an operating configuration of the circuit.

16. (Currently Amended) A circuit ~~Circuit~~ according to claim 15, ~~in which~~ wherein said length of the second duct follows a bow-shaped pathway ~~with its~~ having a concavity pointing upwards.

17. (Currently Amended) A circuit ~~Circuit~~ according to claim 1, ~~in which~~ wherein at least one of said ~~two~~ arterial and venous chambers has at least an inlet opening and an outlet opening arranged in a lower portion of said ~~chamber~~ at least on of said arterial and venous chambers, the inlet opening being located slightly above the outlet opening with reference to an operating configuration of the circuit.

18. (Currently Amended) A circuit ~~Circuit~~ according to claim 17, ~~in which~~ wherein said ~~chamber~~ at least one of said arterial and venous chambers has an inclined bottom, said inlet opening and said outlet opening being placed close to an upper end and to a lower end, respectively, of said inclined bottom.

19. (Currently Amended) A circuit ~~Circuit~~ according to claim 1, ~~in which~~ wherein said ~~two chambers are joined one to the other into an~~ integrated structure having has at least a one deflecting element, said deflecting element being configured designed to deviate downwards the a blood flow entering a lateral inlet of at least a ~~chamber~~ one of said arterial and venous chambers.

20. (Currently Amended) A circuit ~~Circuit~~ according to claim 19, ~~in which~~ wherein said at least one deflecting element comprises a bow-shaped screen arranged before said lateral inlet, said screen having an upper end secured to a lateral wall of one of said ~~chamber~~ arterial and venous chambers, and a free lower end.

21. (Canceled)

22. (Currently Amended) A circuit ~~Circuit~~ according to claim 21 1, ~~in which~~ wherein said pump portion of the return line is arranged within the extracorporeal circuit downstream from a the venous chamber.

23. (Currently Amended) A circuit ~~Circuit~~ according to claim 21 1, ~~in which~~ wherein said pump portion extends on a substantially vertical plane, with reference to an operating configuration of the circuit, and is arranged below the integrated structure.

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Currently Amended) A circuit ~~Circuit~~ according to claim 1, ~~in which~~ wherein said arterial and venous chambers ~~have~~ each have a substantially flattened shape and are joined one beside the other on one lateral side into ~~an~~ the integrated structure.

28. (Canceled)

29. (Currently Amended) A circuit ~~Circuit~~ according to claim 1, ~~in which~~ wherein said blood withdrawal line and said blood return line are designed to be connected with a single-needle vascular access.

30. (Currently Amended) A disposable ~~Disposable~~ haematic module designed to be used on an extracorporeal blood treatment machine, comprising an extracorporeal circuit according to claim 1.

31. (Currently Amended) A blood ~~Blood~~ treatment machine designed to receive a haematic module according to claim 30.

32. (Currently Amended) A machine ~~Machine~~ according to claim 31, ~~designed~~ configured to carry out one or more of the treatments selected from the group including: haemodialysis, haemofiltration, haemodiafiltration, and pure ultrafiltration.

33. (Withdrawn) Integrated structure comprising at least an arterial chamber and a venous chamber for an extracorporeal blood circuit, an arterial inlet connection and an arterial outlet connection in fluid connection with the arterial chamber, a venous inlet connection and a venous outlet connection in fluid connection with the venous chamber.

34. (Withdrawn) Integrated structure according to claim 33, said arterial outlet connection and said venous inlet connection being arranged on the same side of the integrated structure.

35. (Withdrawn) Integrated structure according to claim 33, in which said arterial outlet connection and said venous inlet connection have each an operating axis connecting to a corresponding portion of blood conveying line, said operating connection axes being parallel one to the other.

36. (Withdrawn) Integrated structure to claim 33, in which said arterial inlet connection and said arterial outlet connection are arranged one beside the other on the same side of the integrated structure.

37. (Withdrawn) Integrated structure according to claim 33, equipped inside with at least a first duct which connects a first of said connection with a first of said chambers.

38. (Withdrawn) Integrated structure according to claim 37, in which at least a part of said first duct passes through at least a part of a central portion of the integrated structure in which the two chambers are placed one beside the other.

39. (Withdrawn) Integrated structure according to claim 37, in which said first connection is far from said first chamber and is placed on one side of a second of said chambers placed beside the first chamber.

40. (Withdrawn) Integrated structure according to claim 39, in which the first chamber is placed opposite said side of the second chamber on which said first connection is located.

41. (Withdrawn) Integrated structure according to claim 37, in which said first duct comprises at least a length leading to said first connection, arranged above said second chamber with reference to an operating configuration of the structure.

42. (Withdrawn) Integrated structure according to claim 37, in which said first duct comprises at least a length extending mainly in vertical direction with reference to an operating configuration of the structure, and arranged between the two chambers.

43. (Withdrawn) Integrated structure according to claim 37, in which said first chamber is an arterial chamber.

44. (Withdrawn) Integrated structure according to claim 37, equipped inside with at least a second duct which puts into fluid connection the second of said connections with the first chamber.

45. (Withdrawn) Integrated structure according to claim 44, in which at least a part of the pathway followed by said second duct is parallel to at least a part of the pathway of said first duct.

46. (Withdrawn) Integrated structure according to claim 44, in which said second duct comprises at least a length leading to said first expansion chamber and extending in a portion placed below the latter, with reference to an operating configuration of the structure.

47. (Withdrawn) Integrated structure according to claim 46, in which said length of the second duct follows a bow-shaped pathway with its concavity pointing upwards.

48. (Withdrawn) Integrated structure according to claim 33, comprising at least a deflecting element, designed to deviate downwards the blood flow entering a lateral inlet of at least a chamber.

49. (Withdrawn) Integrated structure according to claim 48, in which said deflecting element comprises a bow-shaped screen arranged before said lateral inlet having an upper end secured to a lateral wall of said chamber, and a free lower end.

50. (Withdrawn) Integrated structure according to claim 33, comprising at least a pair of pump portion connections connected to the two opposite ends of a pump portion of the return line, designed to be coupled with a pump, said connections being configured and arranged so as a pump portion extends on a substantially vertical plane, with reference to an operating configuration of the structure, and is arranged below the integrated structure.

51. (Withdrawn) Integrated structure according to claim 50, equipped inside with a first connection cavity putting into fluid communication at least one of said pump portion connections with a venous chamber.

52. (Withdrawn) Integrated structure according to claim 50, equipped inside with a second connection cavity putting into fluid communication at least one of said pump portion connections with a venous outlet connection attached to the integrated structure.

53. (Withdrawn) Use of an integrated structure in an extracorporeal blood circuit, said integrated structure being made according to claim 33, at least a first blood chamber of said structure being used as arterial chamber, in a blood withdrawal line from the patient, and at least a second blood chamber of said structure being used as venous chamber, in a blood return line to the patient.

54. (Withdrawn) Use according to claim 53, in which the extracorporeal blood circuit enters the patient's cardiovascular system through a single access element.